REPORT

to

SANTA CLARA COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT
San Jose, California

on

# SOIL INVESTIGATION
for the
GUADALUPE RIVER PROJECT, REACH NO. 1

-

PRELIMINARY STUDY
of the
WEST BANK OF ALVISO SLOUGH
and
PROPOSED S.P.R.R. RETAINING WALL
Santa Clara County, California

by

GRIBALDO, JACOBS, JONES AND ASSOCIATES
333 Bayshore Frontage Road
Mountain View, California

January 1963

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File No. E584-M1
14 January 1963

Santa Clara County Flood Control
and Water Conservation District
70 Rosa Street
San Jose, California

Attention: Mr. Dwight Smith, Project Co-ordinator

Subject: Guadalupe River Project between S.P.R.R. and
Steamboat Slough, Alviso, California
SOIL DRILLING AND TESTING REPORT

Gentlemen:

We are pleased to submit herewith our report on the field investigation, and subsequent laboratory testing of selected undisturbed soil samples, for the subject site.

The field investigation, conducted on 11 and 12 December 1962 and 3 January 1963, consisted of a site inspection by an Engineer and the drilling of seven (7) test borings at the locations shown on PLATE NO. 1. The borings were drilled to depths ranging from 8 to 29 feet below the existing ground surface, with a truck-mounted drill rig, using power-driven, six-inch diameter continuous flight augers. As the borings were advanced, undisturbed samples were taken of the soils encountered, and logs were kept, showing the depths and thicknesses of the soil types and the locations of samples taken (see Figures No. 1 through 7 of Appendix A, "Log of Test Borings"). The undisturbed samples were taken by forcing a 2" diameter modified California sampler into the undisturbed soil. The sampler was advanced by a 140 pound drop hammer having a thirty-inch free fall, and the penetration resistances were evaluated by the number of blows required to advance the sampler twelve-inches.

As shown in the log of borings, for holes No. 1, 5 and 6, which are located adjacent to and between Eldorado Street and the S.P.R.R., the upper 5 to 6-1/2 feet of material is fill, composed of a moderately loose sandy and clayey gravel. This fill is underlain with a moderately stiff silty clay to a depth of twelve feet, where a medium stiff sandy clay is encountered and continues to the depth of twenty-one feet. At twenty-one feet, gravelly and silty Sands are encountered for the next six feet, then at twenty-seven feet a moderately soft, blue-grey fine sandy Clay exists and continues for the remaining portion of the boring to twenty-nine feet. Hole No. 2, on the levee and adjacent to Hope Street, indicated fill material to a depth of seven feet. The upper two feet of the fill is composed of a moderately firm sandy Silt, while the remaining five feet is a very loose conglomerate of sand and sea shells. This material is underlain by a wet and medium firm sandy Clay with gravel to a depth of fifteen feet, where a dense silty sand exists for the remaining portion of the hole to nineteen feet. In Hole No. 3, on the toe of the levee at the end of Elizabeth Street, a firm gravel clay was encountered for one and one-half feet, underlain by a dense clayey gravel. At four feet a medium stiff sandy Clay was revealed and continued for the remaining portion of the boring, fourteen feet. Hole No. 4 revealed a fill of sandy and gravelly Clay to four feet, underlain by a soft sandy Clay to seven and one-half feet, and a very soft silty Clay to seventeen feet. At seventeen feet a stiff sandy Clay was encountered and continued to the termination of drilling at nineteen feet.

Hole No. 7, located 57 feet south and six feet west of the sidewalk edge in front of Vahl's Restaurant, revealed the street section for 18 inches, underlain by thin layers of sandy Gravel then silty Sand material. At four feet the moderately stiff silty Clay material is encountered and continues to eight feet, then a moderately stiff sandy Clay is revealed to a depth of 11-1/2 feet. A silty Sand is encountered at 11-1/2 feet and continues for the remaining portion of the boring to 14 feet.

Ground water was encountered in each hole at the elevation, time and date as shown on each log, Figures 1 through 7.

The samples recovered during the drilling program were tested in the laboratory as directed, to determine the in-place conditions that exist at the site.

In-place conditions of moisture content and dry density were determined in the laboratory by weighing a known volume of material before and after drying. Strength parameters of the in-place soil were determined from direct shear tests performed on undisturbed samples. The specimens to be tested were prepared by being placed in contact with water for 24 hours, and then allowed to drain before and during the test. Shearing was done under normal loads ranging from 1,000 to 3,000 p.s.f. Two one-dimension consolidation tests were performed on samples of potentially compressible soils from Borings 4 and 7 in order to determine the settlement characteristics of the materials. Results of the foregoing tests are summarized in TABLE I, Appendix A, with the exception of the consolidation tests results, which are shown graphically as Figures 8 and 9 of Appendix A.

Please feel free to contact us if we can be of service in discussing either this report or any additional questions you may have regarding the project from a soils viewpoint.

Very truly yours,

GRIBALDO, JACOBS, JONES AND ASSOC.

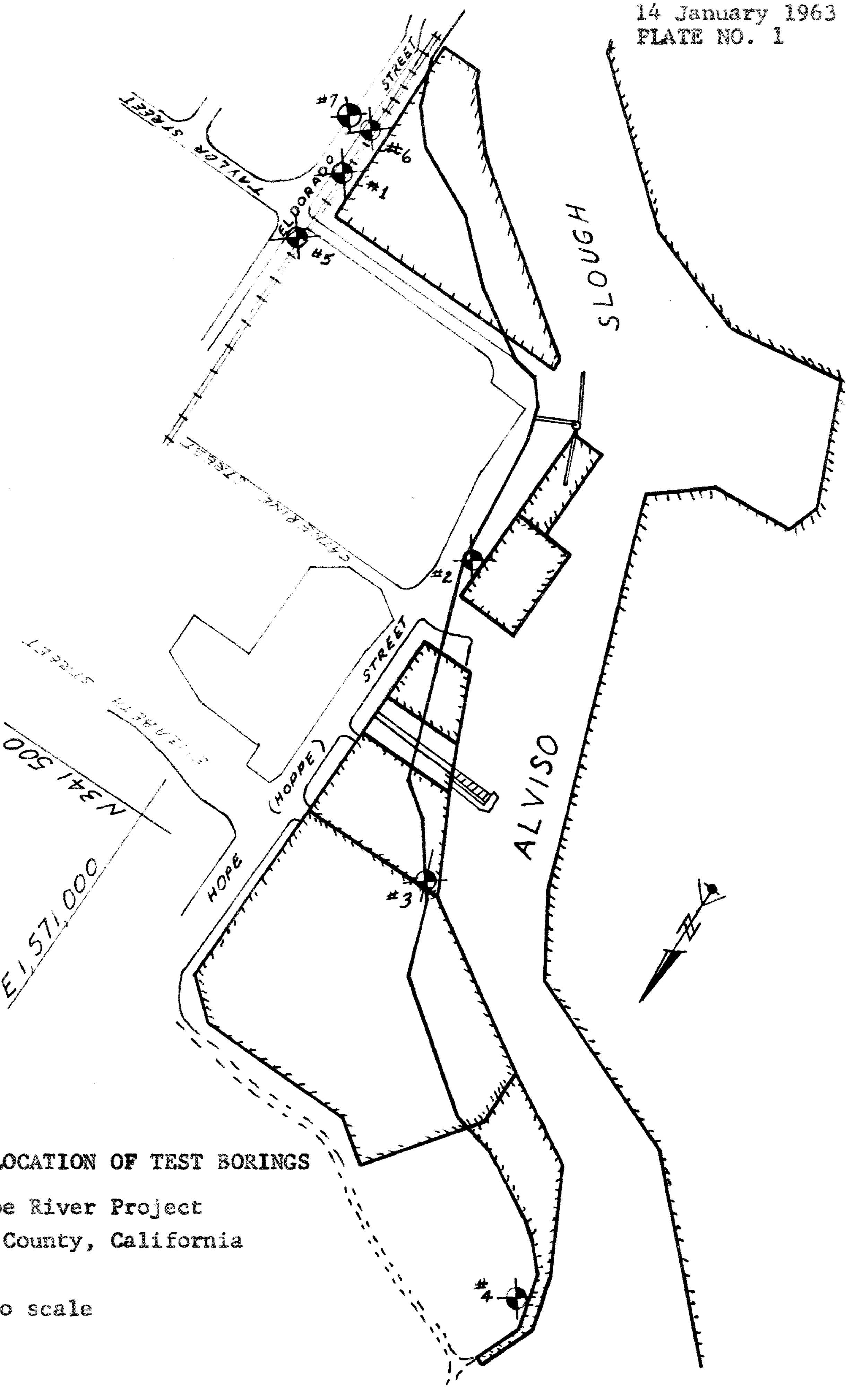
James C. Reynolds/bb
James C. Reynolds

William F. Jones
William F. Jones
C.E. 9565

JCR:WFJ:bb

Copies: 3 to Santa Clara County Flood Control
and Water Conservation District

File No. E584-M1
14 January 1963
PLATE NO. 1



SITE PLAN AND LOCATION OF TEST BORINGS

Guadalupe River Project
Santa Clara County, California

No scale

Appendix A

Summary of Laboratory Test Results

Logs of Test Borings

Consolidation Curves

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WATER DISTRICT
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TABLE I

Summary of Laboratory Test Results

Hole no.	Depth ft.	Moisture Content %	Dry Density p.c.f.	Swell Index	Angle of Friction degrees	Unit Cohesion p.s.f.
1	8-1/2	30.1	91.8	1.1	5.5	760
1	18-1/2	28.4	97.2			
1	23-1/2	17.1	116.7			
1	28-1/2	26.8	100.1			
2	1-1/2	16.3	98.7			
2	3-1/2	28.6	89.2			
2	13-1/2	25.1	98.9			
2	18-1/2	18.2	112.2			
3	1-1/2	23.8	99.1			
3	3-1/2	21.9	105.1			
3	8-1/2	22.1	115.8			
3	13-1/2	22.4	105.0			
4	1-1/2	10.6	113.5			
4	3-1/2	31.1	86.1			
4**	8-1/2	60.7	70.5	0.0	24*	200*
4	13-1/2	58.4	60.0			
4	18-1/2	19.5	110.0			
7**	4-1/2	33.8	90.0	1.0	3.5	890
7	8-1/2	27.3	96.7			

Notes:

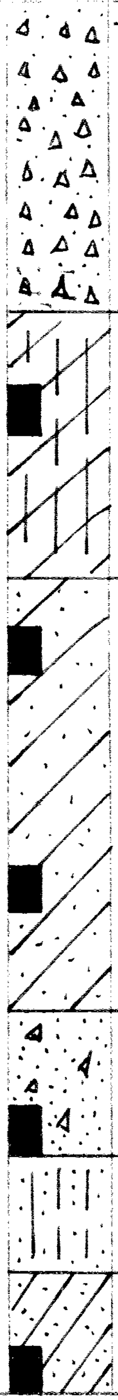
1) Asterisks, *, indicate recommended strength parameters for this sample. Actual test results were somewhat erratic due to the fine sand lenses found in the samples.

2) Double asterisks, **, represent samples on which consolidation tests have been performed, see Figures 8 and 9.

File No. E584-M1

14 January 1963

Figure No. 1



Depth in feet	Sample No.	Log & Location of Sample	Description	In - Place Dry Density p.c.f.	In - Place Moisture Content % dry wt.	Shear Strength p.s.f.
0			Ground Surface			
			▽ Water Table 0930, 11/12/62			
2			Fill, Brown Sandy GRAVEL, wet and moderately loose			
4						
6						
			Black Silty CLAY, wet and moderately stiff			
8	1-1 15*			91.8	30.1	
10						
12						
	1-2 25*		Mottled reddish brown and grey laminated Sandy CLAY, moist and medium stiff	No sample		
14						
16						
18	1-3 18*			97.2	28.4	
20						
22			Grey Gravelly SAND, moist and dense			
	1-4 41*			116.7	17.1	
24						
			Reddish brown Silty SAND, moist and dense			
26						
			Blue-grey fine Sandy CLAY, moist and moderately soft			
28	1-5 14*			100.1	26.8	

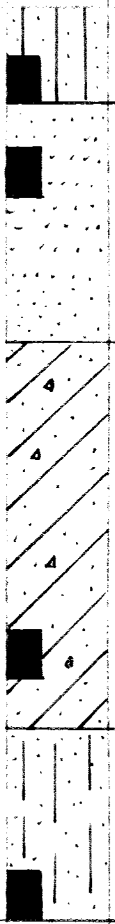
Boring Terminated at 29'

LOG OF TEST BORING

*Penetration Resistance in Blows/ft.

HOLE NO. 1

File No. E584-M1
14 January 1963
Figure No. 2



Depth in feet	Sample No.	Log & Location of Sample	Description	In-Place Dry Density p.c.f.	In-Place Moisture Content % dry wt	Shear Strength p.s.f.
0			Ground Surface			
2	2-1 10*		**Fill, Light brown Sandy SILT, moist and moderately firm** ▽ Water Table, 1250, 11/12/62	98.7	16.3	
4	2-2 1*		**Fill, Grey Sand and Sea Shells, wet and very loose**	**89.2**	**28.6**	
6						
8			**Mottled reddish brown Sandy CLAY with fine gravel, wet and medium firm**			
10						
12						
14	2-3 13*			**98.9**	**25.1**	
16			**Reddish brown Silty SAND, moist and dense**			
18	2-4 23*			**112.2**	**18.2**	

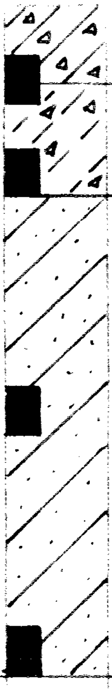
Boring Terminated at 19'

***Penetration Resistance Value in Blows/ft.**

LOG OF TEST BORING

HOLE NO. 2

File No. E584-M1
14 January 1963
Figure No. 3

Depth in feet	Sample No.	Log & Location of Sample	Description	In - Place		Shear Strength p.s.f.
				Dry Density p.c.f.	Moisture Content % dry wt.	
0			Ground Surface *Extremely approx. Elev ±5' msl*			
2	3-1 8*		Reddish brown Gravelly CLAY, moist and firm	99.1	23.8	
			⊽ Water Table 0920, 12/12/62			
4	3-2 21*		Black Clayey GRAVEL, moist and dense	105.1	21.9	
6			Medium brown Sandy CLAY, moist and medium stiff			
8	3-3 12*			115.8	22.1	
10			Increasing in fine SAND content			
12						
14	3-4 16*			105.0	22.4	

Boring Terminated at 14'

*Penetration Resistance in Blows/ft.

LOG OF TEST BORING

HOLE NO. 3

File No. E584-M1
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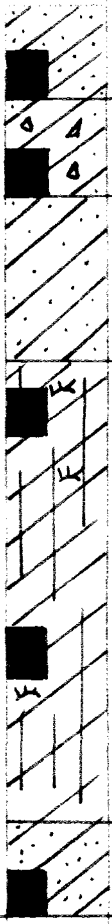
Figure No. 4

Depth in feet	Sample No.	Log & Location of Sample	Description	In - Place Dry Density p.c.f.	In - Place Moisture Content % dry wt.	Shear Strength p.s.f.
0			Ground Surface			
2	4-1 11*		Fill, brown Sandy CLAY, moist and moderately firm	113.5	10.6	
4	4-2 5*		Fill, Mottled brown and grey gravelly CLAY, moist and medium, firm to soft	86.1	31.1	
6			Black Sandy CLAY, wet and soft ▽ Water Table, 1130, 12/12/62 Organics			
8	4-3 1*		Black Silty CLAY with organics, and lenses of fine sand, wet and soft	70.5	60.7	
10						
12						
14	4-4 1*		Organics	60.0	58.4	
16						
18	4-5 20*		Mottled reddish brown and grey Sandy CLAY, moist and stiff	110.0	19.5	

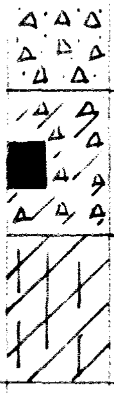
Boring Terminated at 19'

*Penetration Resistance in Blows/ft.

LOG OF TEST BORING

HOLE NO. 4

File No. E584-M1
14 January 1963
Figure No. 5

Depth in feet	Sample No.	Log & Location of Sample	Description	In-Place Dry Density p.c.f.	In-Place Moisture Content % dry wt.	Shear Strength p.s.f.
0			Ground Surface			
			Brown Sandy GRAVEL, moist and moderately loose			
2						
	5-1 4*		▽ Water Table, 1345, 12/12/62	No sample		
4			Black Clayey GRAVEL, wet and medium loose			
6			Black Silty CLAY, moist and medium stiff			
8						
			Boring Terminated at 8'			
			*Penetration Resistance in Blows/ft.			

LOG OF TEST BORING

HOLE NO. 5

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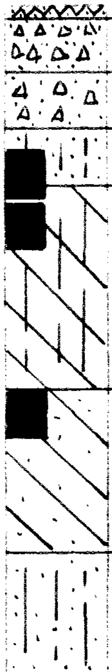
File No. E584-M1
14 January 1963
Figure No. 6

Depth in feet	Sample No.	Log & Location of Sample	Description	In-Place		Shear Strength p.s.f.
				Dry Density p.c.f.	Moisture Content % dry wt.	
0			Ground Surface			
		△	▽ Water Table 1400, 12/12/62, Coarse GRAVEL			
2		△	Brown Sandy GRAVEL, moist and moderately loose			
4		△				
6		▨	Black Silty CLAY, moist and medium stiff			
8			Boring Terminated at 8'			

LOG OF TEST BORING

HOLE NO. 6

File No. E584-M1
14 January 1963
Figure No. 7

Depth in feet	Sample No	Log & location of Sample	Description	In - Place		Shear Strength p.s.f.
				Dry Density p.c.f.	Moisture Content % dry wt.	
0			Ground Surface			
			P.M.S. (3")			
			Base rock (15")			
2	2		Black Sandy GRAVEL, moist and dense			
	7-1		▽ Water Table 1000, 3-1-62	No sample		
	3*		Black Silty SAND, wet and loose			
4	7-2		Black Silty CLAY, wet and moderately stiff	90.0	33.8	
6						
8						
	7-3		Yellow brown Sandy CLAY, moist and moderately stiff	96.7	27.3	
10						
12			Tan Silty SAND, wet and moderately dense			
14						

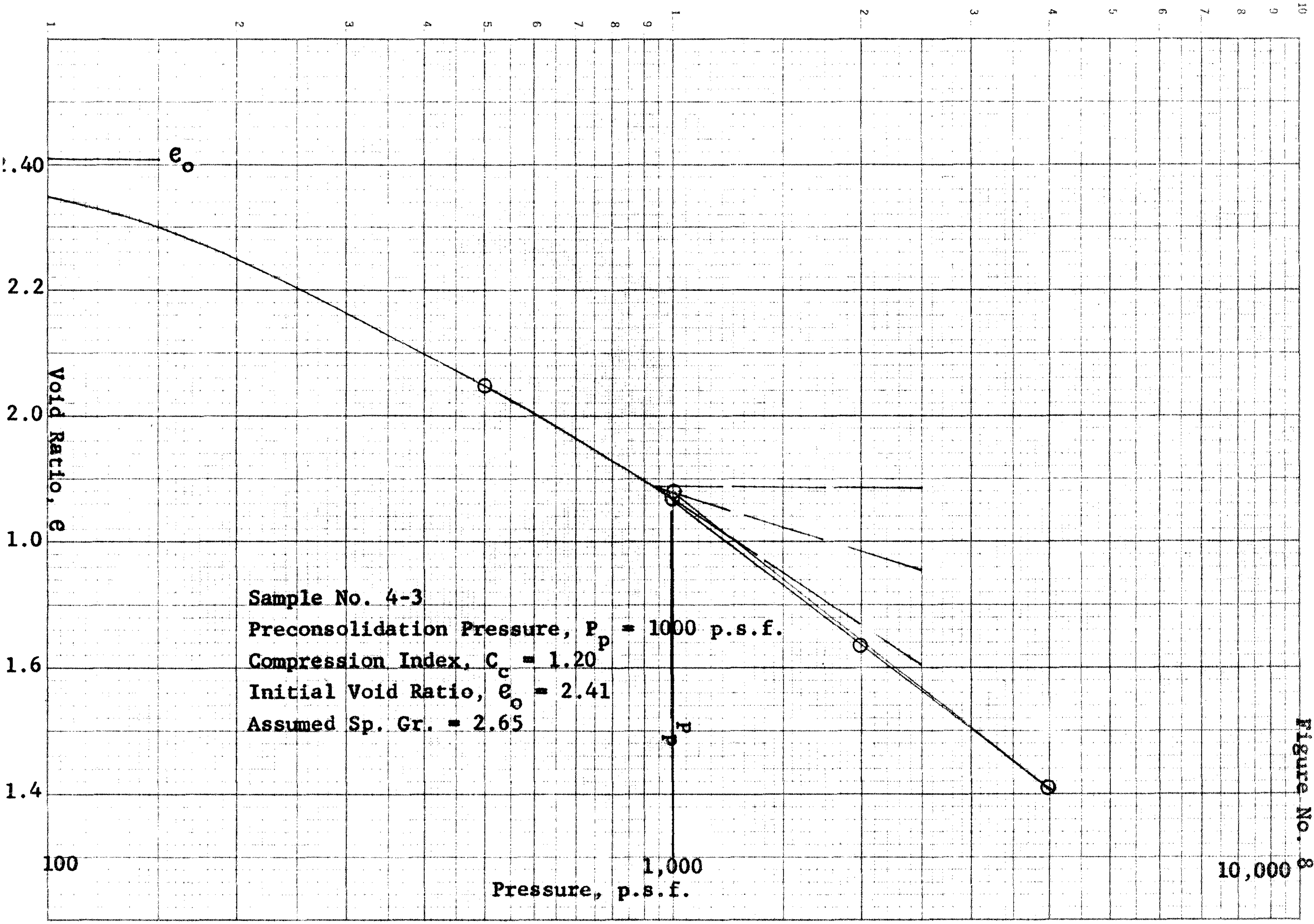
Boring Terminated at 14'

*Penetration Resistance in Blows/ft.

LOG OF TEST BORING

HOLE NO. 7

LOG. MIC 359-6
KEUFFEL & ESSER CO. MADE IN U.S.A.
2 CYCLES X 70 DIVISIONS



Sample No. 4-3

Preconsolidation Pressure, P_p = 1000 p.s.f.

Compression Index, C_c = 1.20

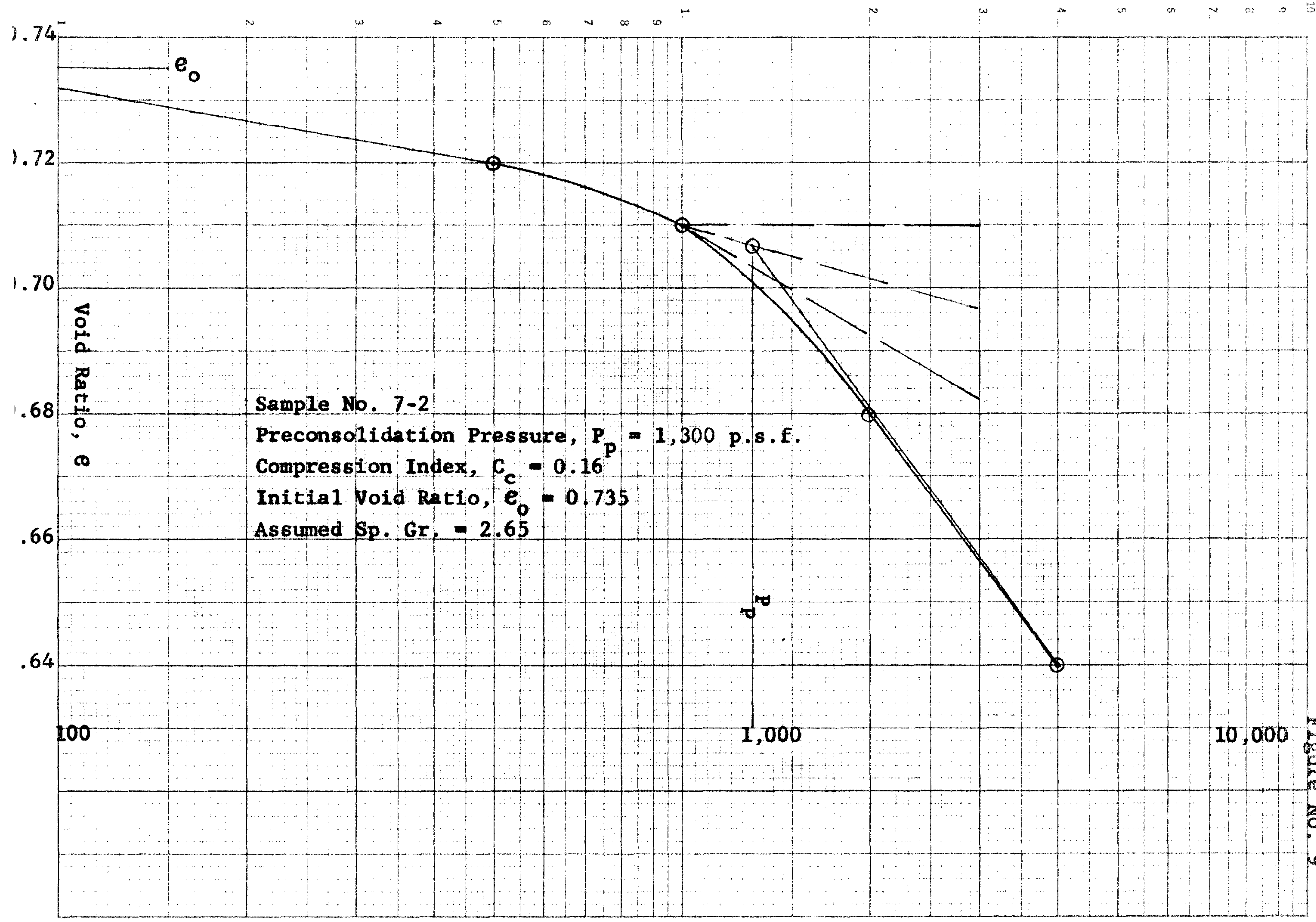
Initial Void Ratio, e_o = 2.41

Assumed Sp. Gr. = 2.65

14 January 1963

Figure No. 8

K+E LOGARITHMIC 359-61
KEUFFEL & ESSER CO. MADE IN U.S.A.
2 CYCLES X 70 DIVISIONS



Sample No. 7-2

Preconsolidation Pressure, P_p = 1,300 p.s.f.

Compression Index, C_c = 0.16

Initial Void Ratio, e_o = 0.735

Assumed Sp. Gr. = 2.65

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Figure No. 9

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